Summary of Data Related to Coastal Shrimp Landings in the Cilacap Area

Richard G. Dudley

LIST OF FIGURES

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INTRODUCTION

Following is a pictorial summary of shrimp landings data collected at several Cilacap area fish landing places. Information presented here was collected during November 1999 through October 2000 as part of the Segara Anakan Conservation and Development Project. This data was collected because Segara Anakan is a nursery area for certain coastal shrimp species. A quantification of this importance was necessary to understand the biological importance and monetary value of Segara Anakan to the coastal shrimp fishery.

Although the various landing places have records of shrimp sales, these data are recorded by sales group, and no species-specific data were available. Our sampling program determined species composition at each landing site during each month. Our data was then supplemented by auction place total catch reports. At some landing sites (PPNC and Sidakaya) information was also obtained from auction place sales books which provided additional information about catch per vessel trip during each month.

The landing places regularly sampled were the Cilacap Fishing Harbor (Pelabuan Perikanan Nusantara Cilacap, PPNC), Sidakaya, and Lengkong. Tegal Kati Layu was also sampled but for the most part we have analyzed that data along with the very similar catches from Lengkong. Sentolokawat, where few shrimp are landed, was visited occasionally and record books there were examined. In the past catches recorded at Sentolokawat were larger. Shrimp catches at Pangandaran were also examined monthly and auction place records obtained.

At the main fishing harbor, Pelabuan Perikanan Nusantara Cilacap (PPNC), shrimp catches come mostly from larger trammel net boats which make multi-day trips. These catches are dominated by *Metapenaeus ensis*, *Metapenaeus affinis*, *Penaeus merguiensis* and *Penaeus indicus*.

Sidakaya, within Cilacap, caters to boats which fish with trammel nets on day trips and the catches are rather similar to, but smaller than, those at the main fishing harbor.

At the Lengkong northeast of Cilacap, and at Tegal Kati Layu near the main fishing harbor, fishermen use small boats on day trips usually fishing for shrimp with a type of bottom seine. Fishermen here also use other gear types which do not catch shrimp. Shrimp catches there are dominated by *Parapenaeopsis coromandelica* and small species, especially *Nematopalaemon tenuipes*.

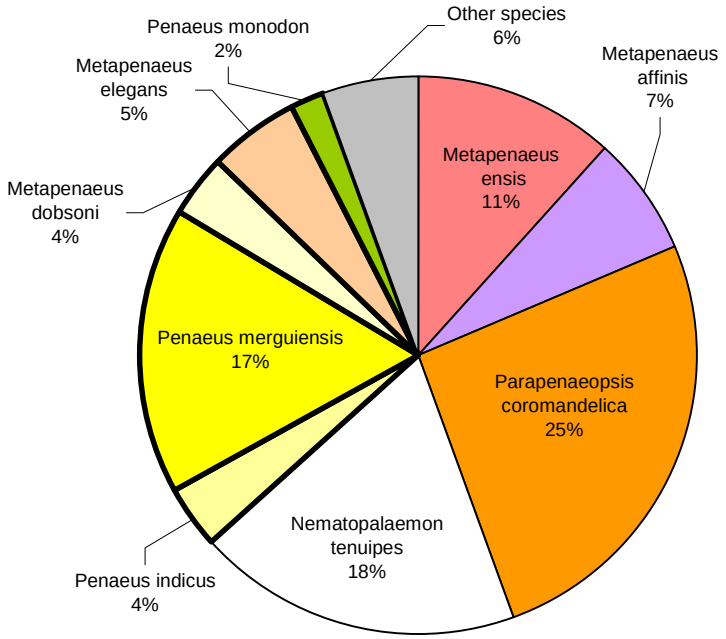
At Sentolokawat, in Cilacap, catches landed are from a variety of gears, especially large mesh gillnet and a type of pelagic seine called payang, but very few shrimp are landed there. However, during some months (usually April, May and August through November) boats using payang occasionally catch large amounts of *Metapenaeus dobsoni*. It is possible that some shrimp from payang are not currently sold at the auction place.

At Pangandaran in West Java, a variety of shrimp species are landed and these are caught using several types of fishing gear including bottom seines, trammel net and payang.

Following is a summary in figures based on the data obtained. This summary is divided into an introductory section about shrimp catches and coastal shrimp stocks followed by sections about the catches at each of the shrimp landing places.

GENERAL INFORMATION

Estimated Species Composition by Weight of Cilacap Area Shrimp Catches
(between 2000 to 3000 tons per year)



Estimated Species Composition by Value of Cilacap Area Shrimp Catches

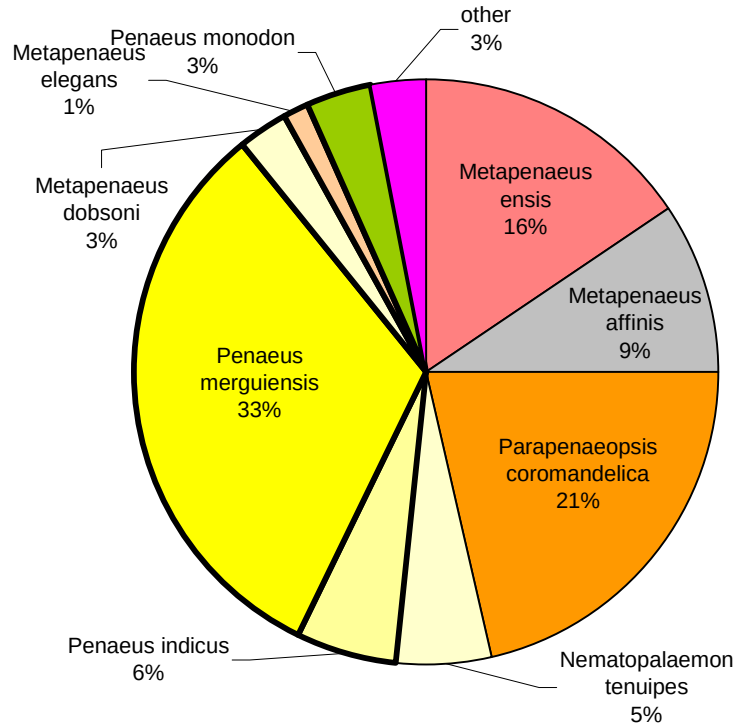


Figure 1. Species composition of all Cilacap area shrimp catches by weight and approximate value during November 1999 through October 2000. A dark outline indicates species highly dependant on Segara Anakan. Includes species, primarily *Metapenaeus elegans*, caught in Segara Anakan.

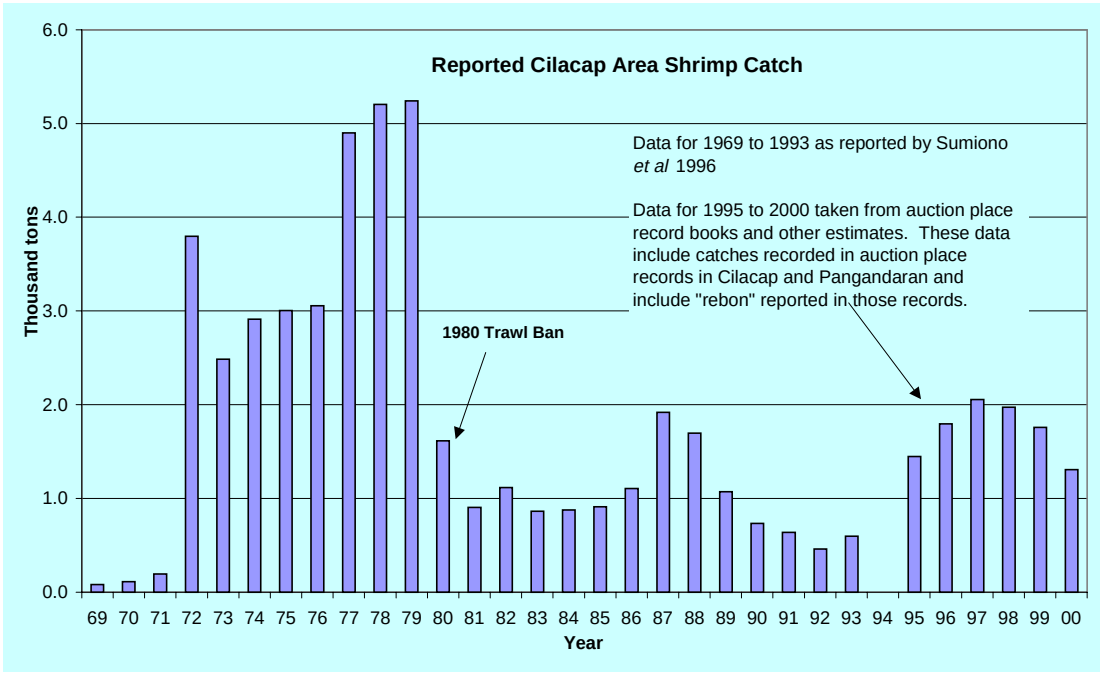


Figure 2. Shrimp catches in the Cilacap area from 1969 through 2000. In 1980 trawling was banned. Note that methods for reporting catches have also changed over time. For example in the late 1970s a new fishery statistical system was implemented.

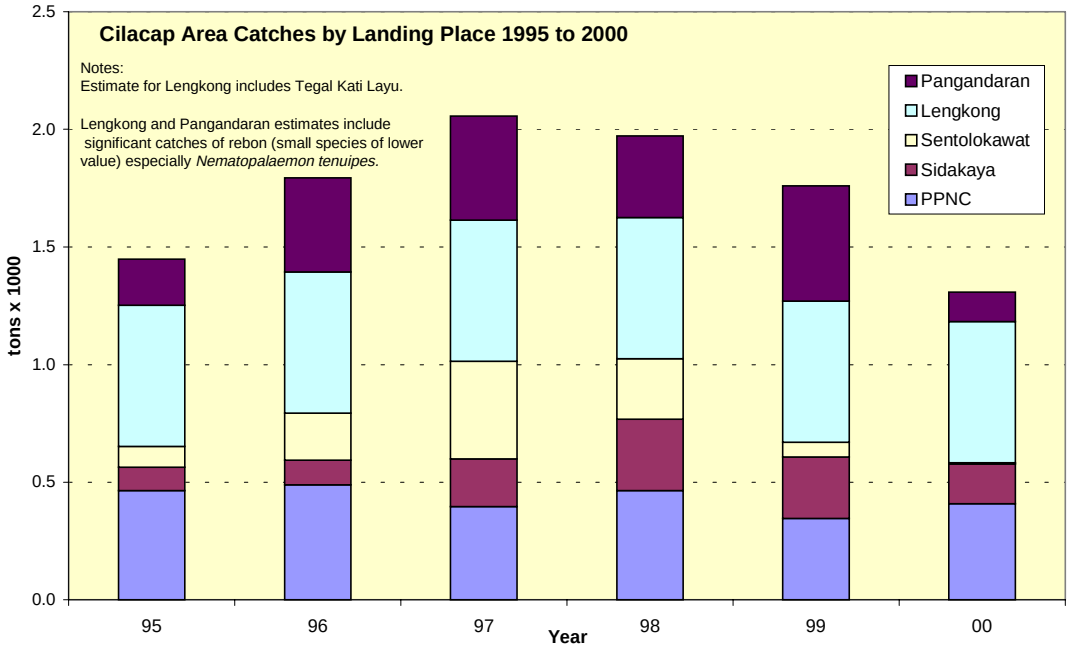


Figure 3. Landings at each landing center 1995 through 2000.

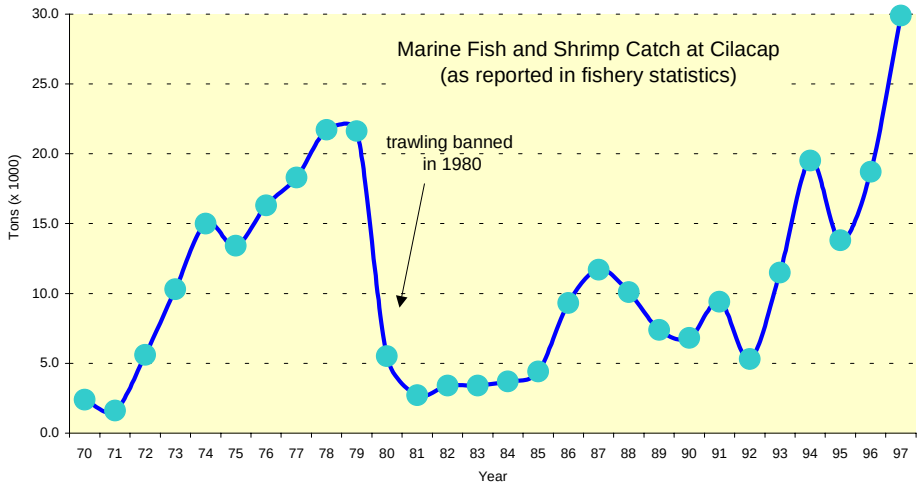


Figure 4. Total shrimp and fish catch in the Cilacap area. It is important to realize that shrimp are just one component of the Cilacap ocean fishery. While catches of shrimp have remained low in recent years reported catches of fish have increased dramatically. Some of this increase is do to increased landings of tuna and other open ocean species.

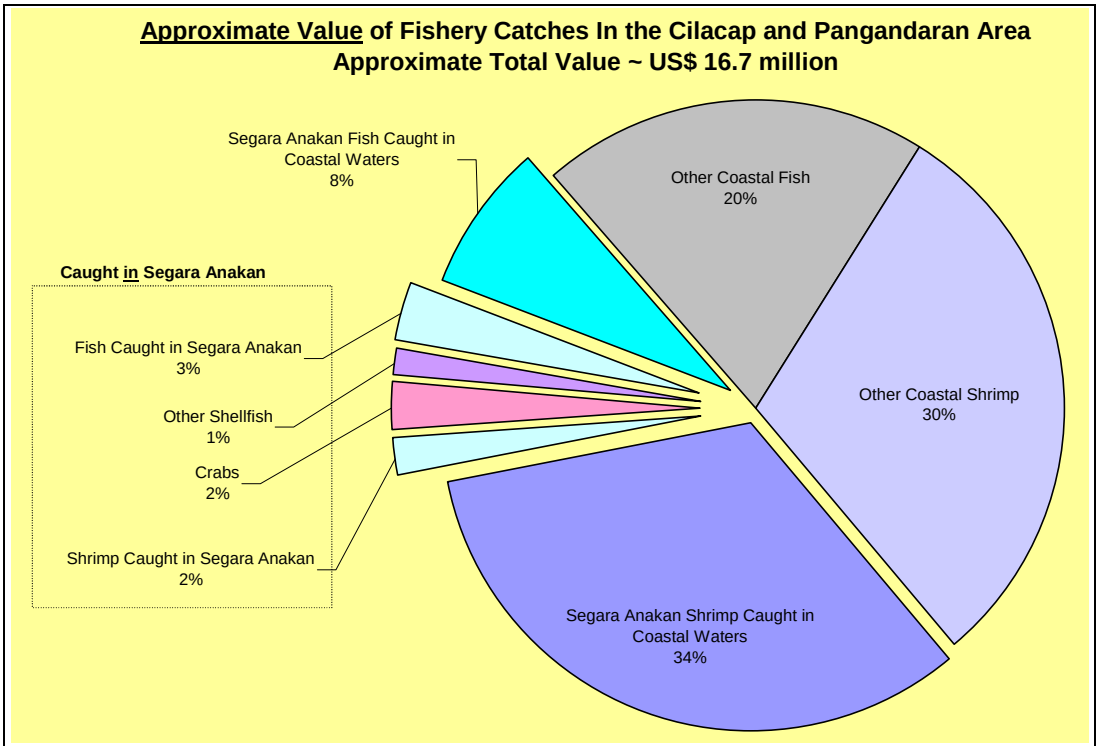
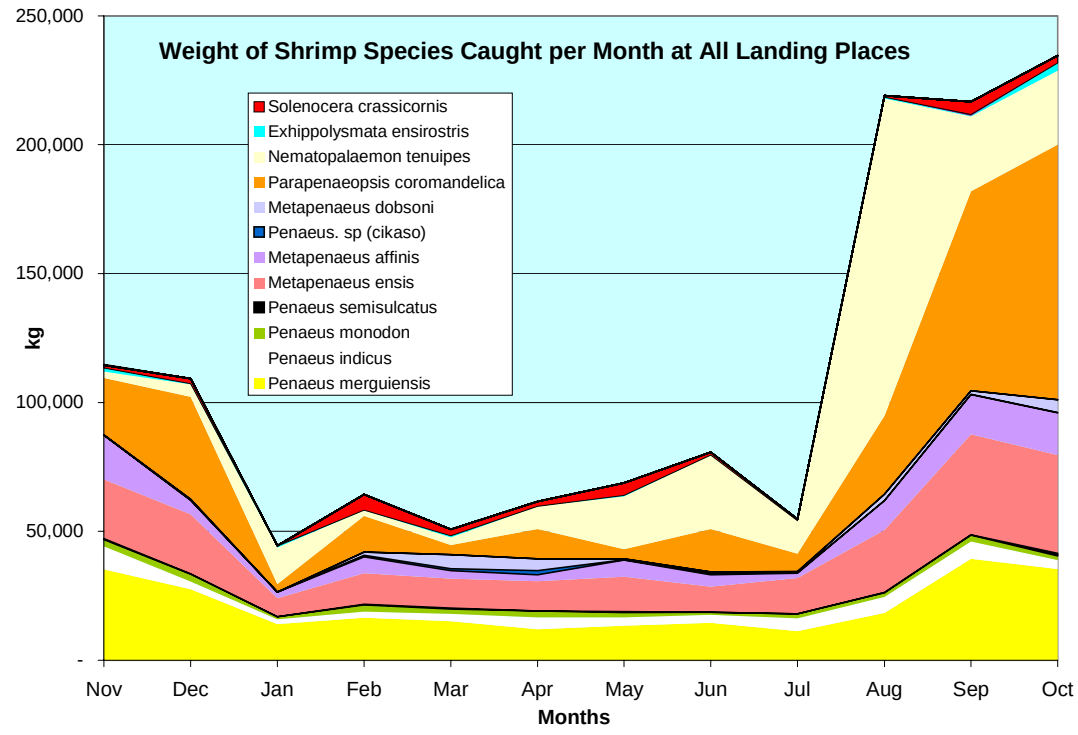


Figure 5. Comparison of the value of the coastal shrimp fishery showing that proportion believed to be dependent on Segara Anakan as a nursery area. Only a small percentage of the shrimp catch is actually caught in Segara Anakan, but a large fraction of the ocean catch is dependent on it. All values shown are approximate.



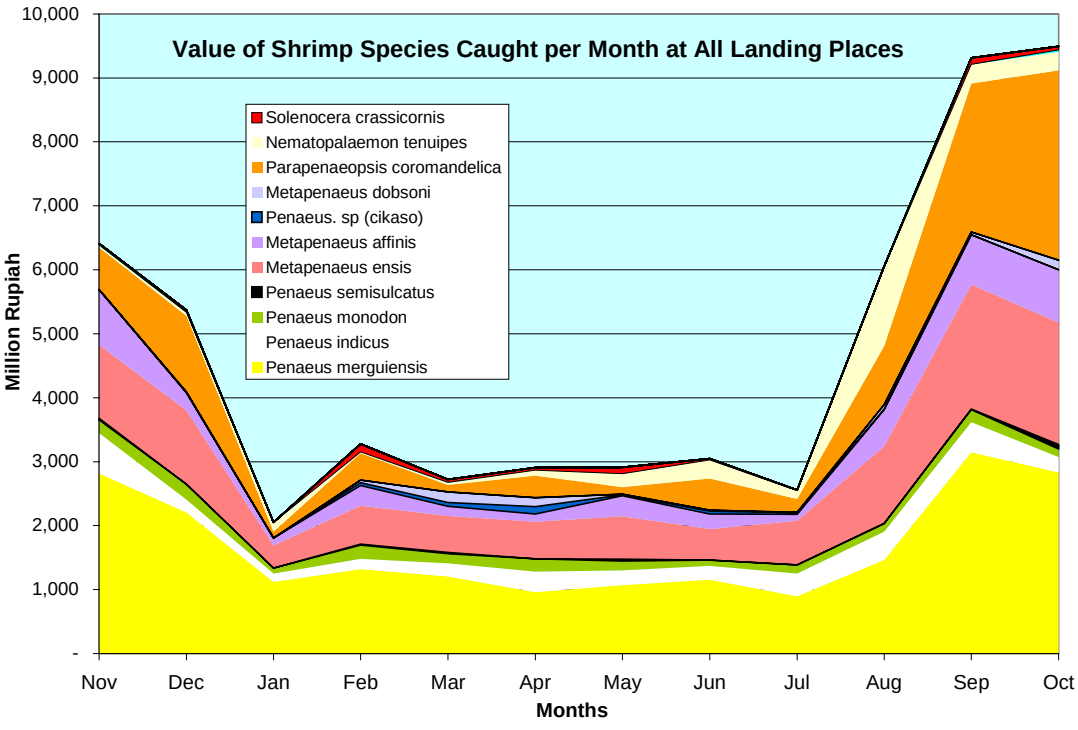


Figure 6.. Shrimp catch per month at all Cilacap landing places showing both weight and value of each species caught. Upper figure shows the weight landed per month while the bottom figure showes the approximate value by species.

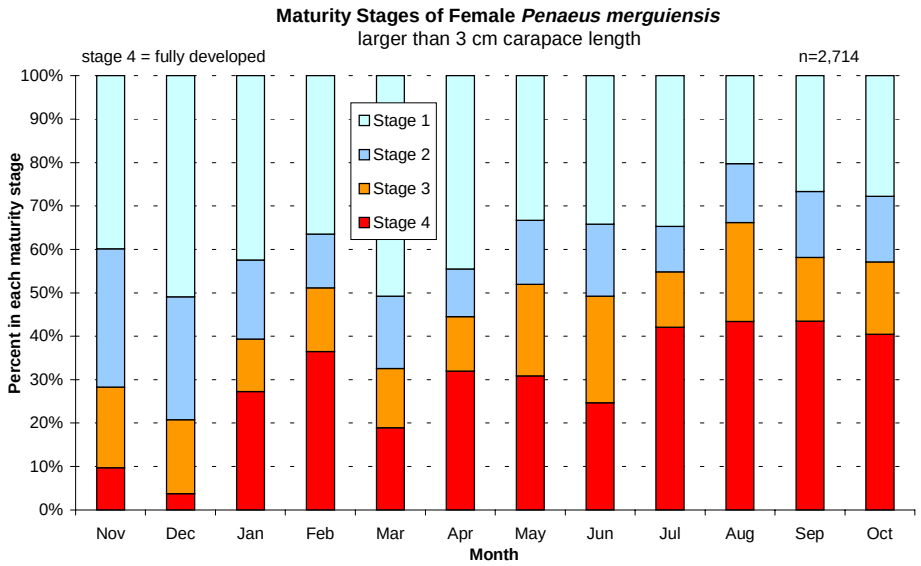


Figure 7. Seasonal changes in maturity of *Penaeus merguiensis* (jerbung kuning) females. Only shrimp larger than 3 cm carapace length were used in these calculations. Only a slight seasonal trend in maturity was evident with more females ready to spawn in July through October and few in spawning condition in November and December.

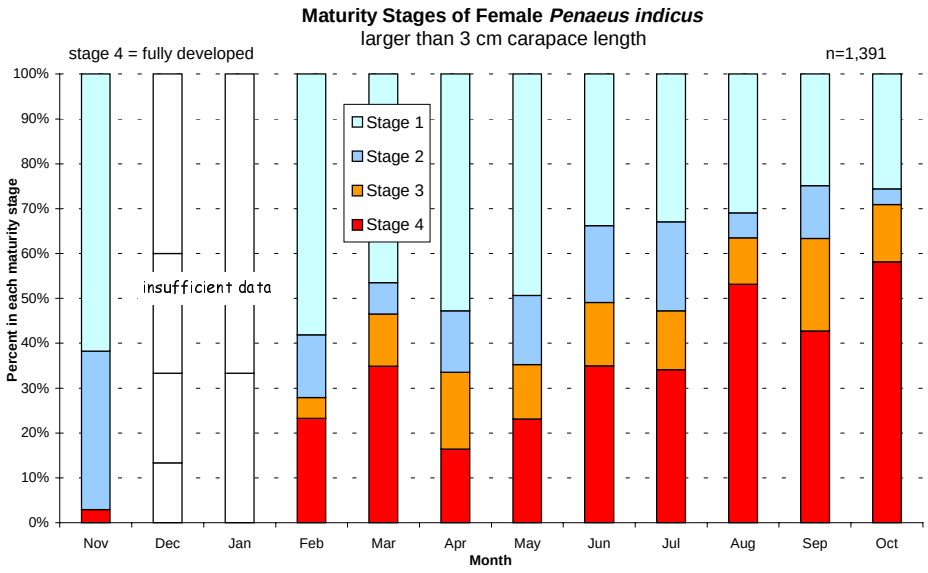


Figure 8. Seasonal changes in maturity of *Penaeus indicus* (jerbung putih) females. Only shrimp larger than 3 cm carapace length were used in these calculations. A seasonal trend in maturity was evident with more females ready to spawn in August through October, but catches of this species, and thus our samples, were very limited in December and January..

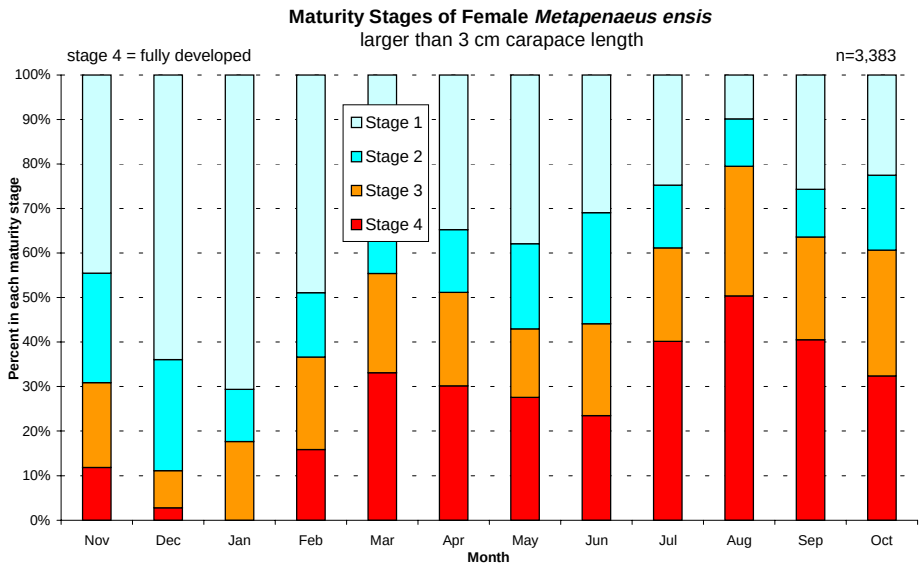


Figure 9. Seasonal changes in maturity of *Metapenaeus ensis* (dogol merah) females. Only shrimp larger than 3 cm carapace length were used in these calculations. Only a seasonal trend in maturity was evident with fewer females ready to spawn in November through February (the rainy season).

CILACAP FISHING HARBOR

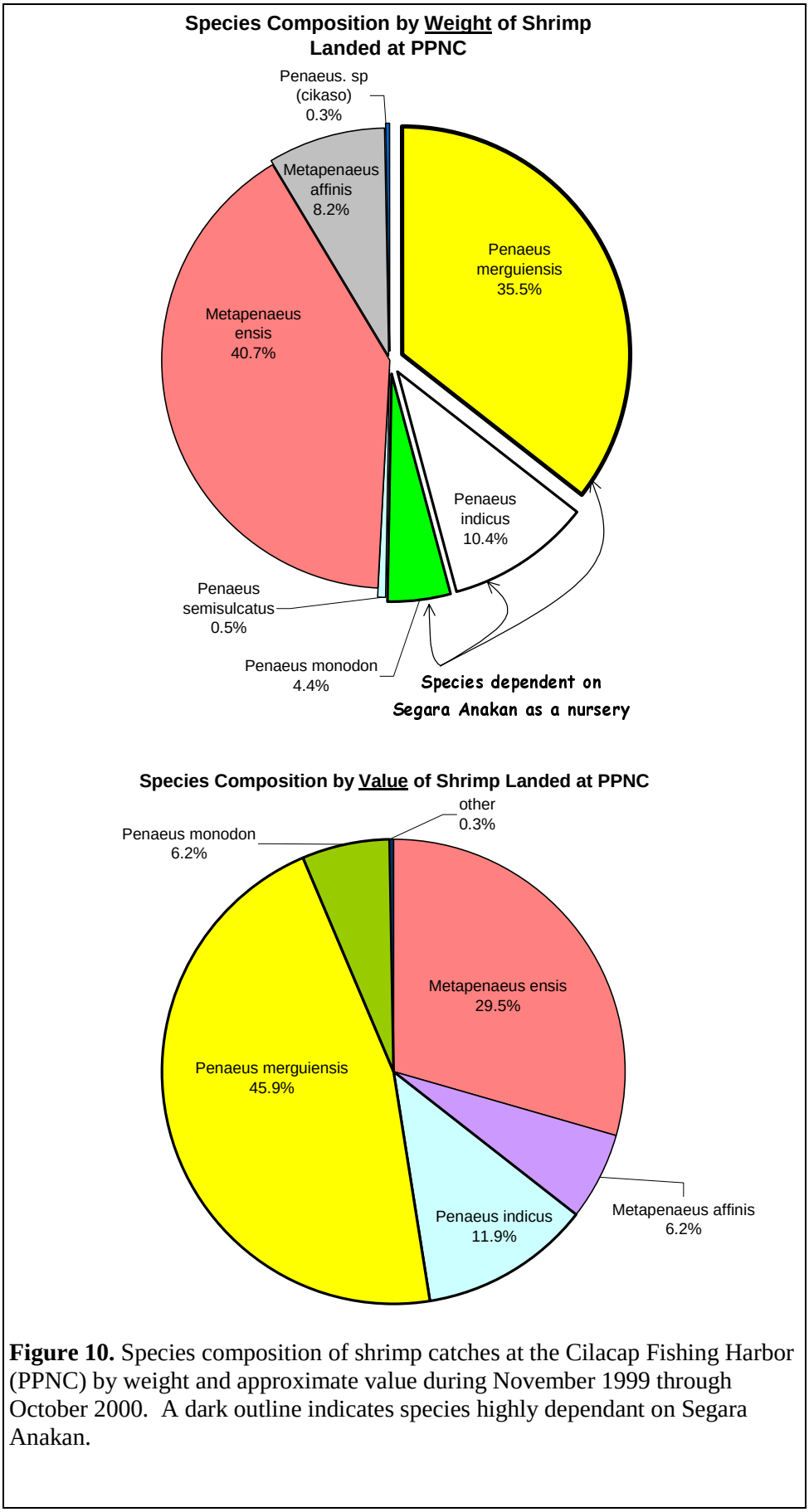


Figure 10. Species composition of shrimp catches at the Cilacap Fishing Harbor (PPNC) by weight and approximate value during November 1999 through October 2000. A dark outline indicates species highly dependant on Segara Anakan.

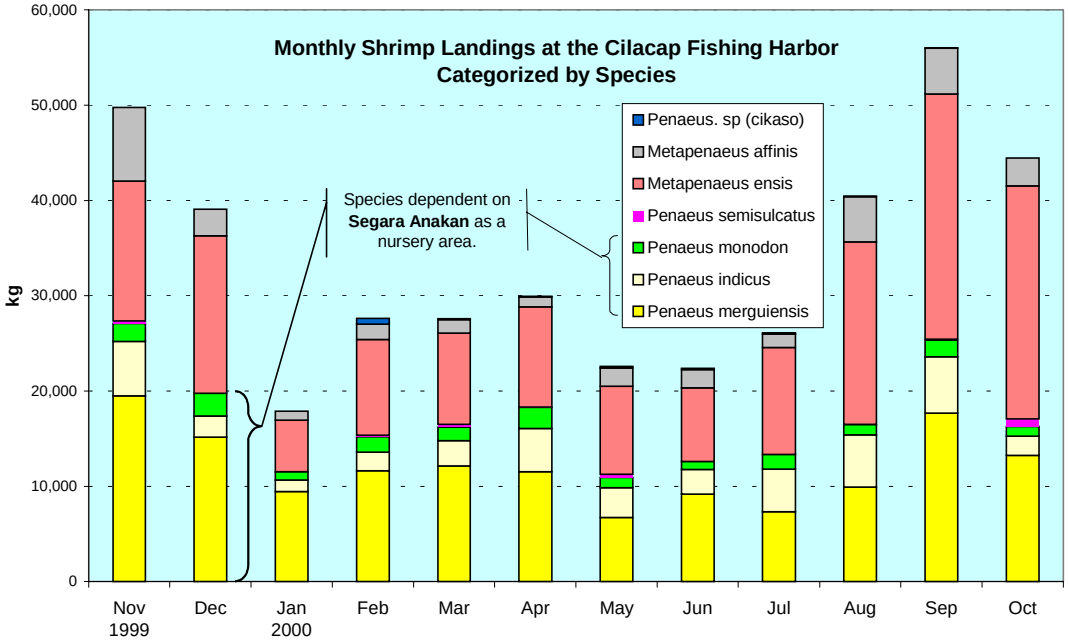


Figure 11. Total landings and species composition data by month at the Cilacap fishing harbor. Data are based on a combination of auction place records of total catch by sales group and our own species composition sampling at the auction hall.

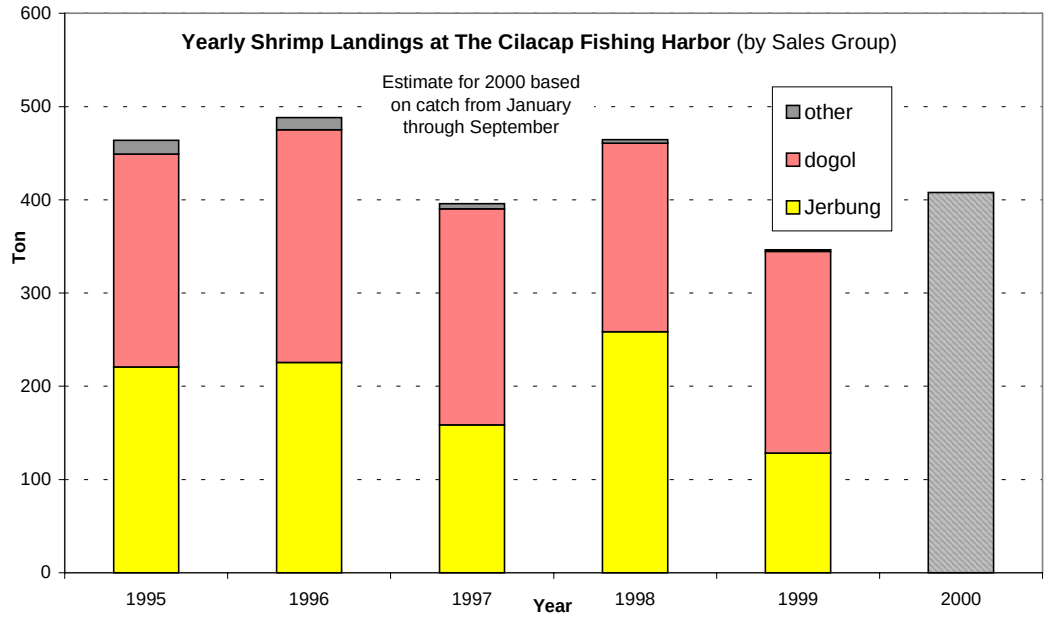


Figure 12. Shrimp catch data from PPNC auction place records showing catch by sales group for 1995 through part of 2000. The PPNC first opened in 1994.

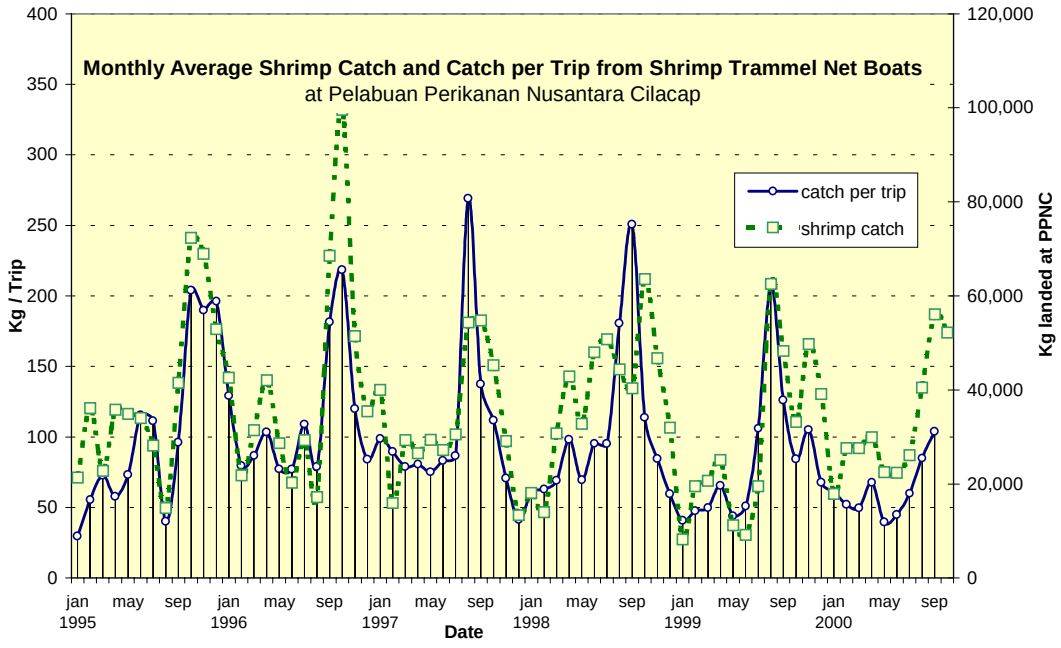


Figure 13. Total catch and catch per trip at the PPNC based on total shrimp landings reported and number of trips reported by the fishing harbor office.

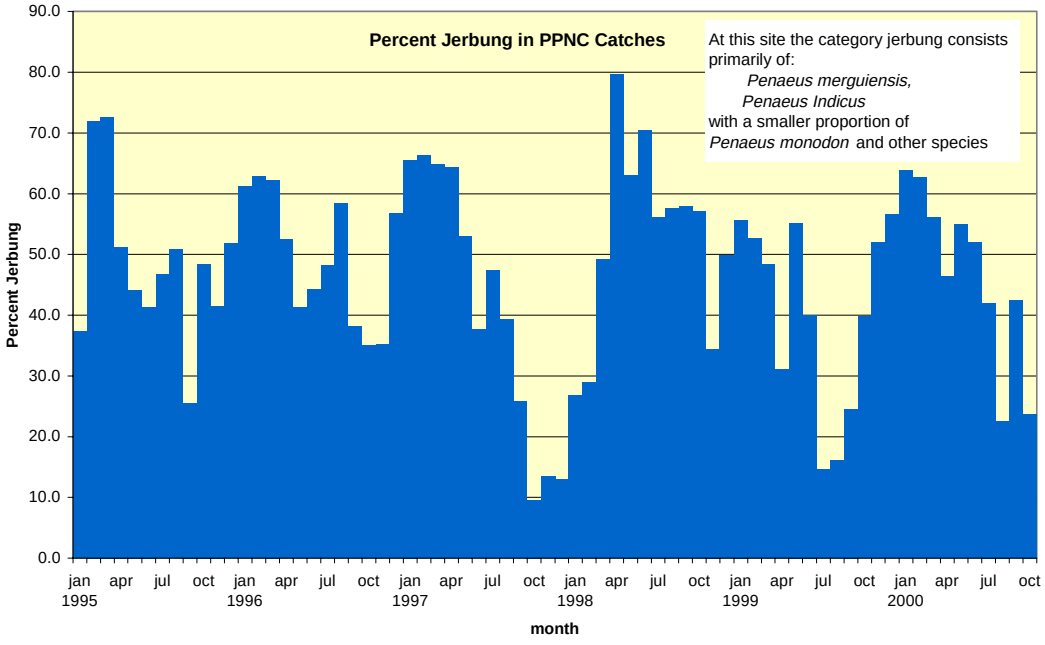


Figure 14. Percentage of the reported catch at PPNC which was categorized as "jerbung" during 1995 through 2000. Species in this sales category use Segara Anakan as a nursery area.

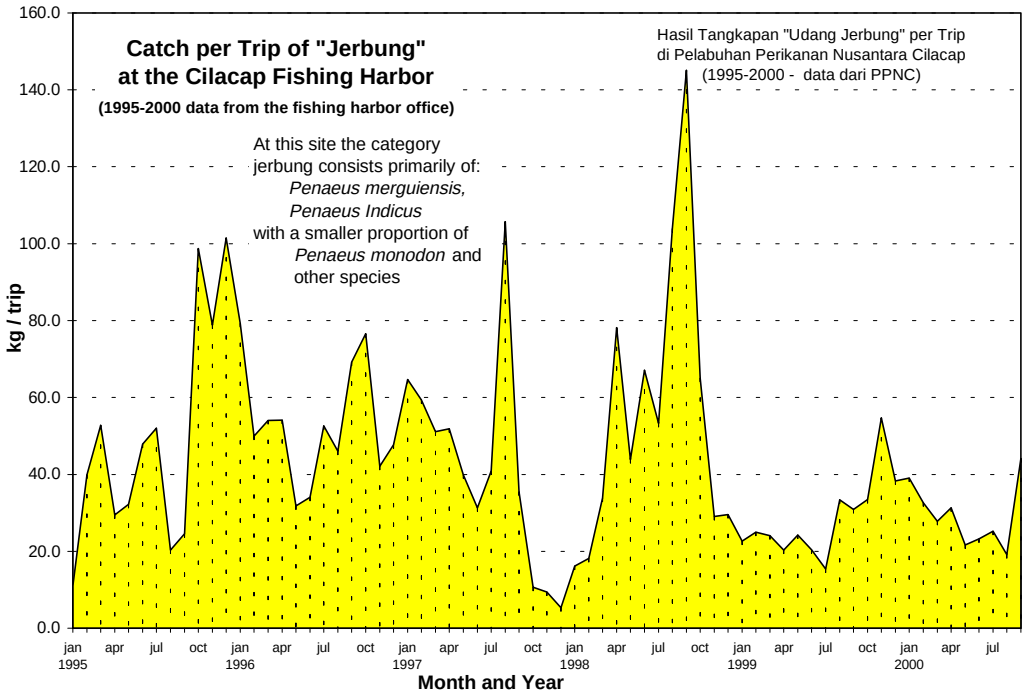


Figure 15. Monthly mean catch per trip of the sales category **jerbung** from 1995 to 2000 based on information and data available from PPNC auction place records.

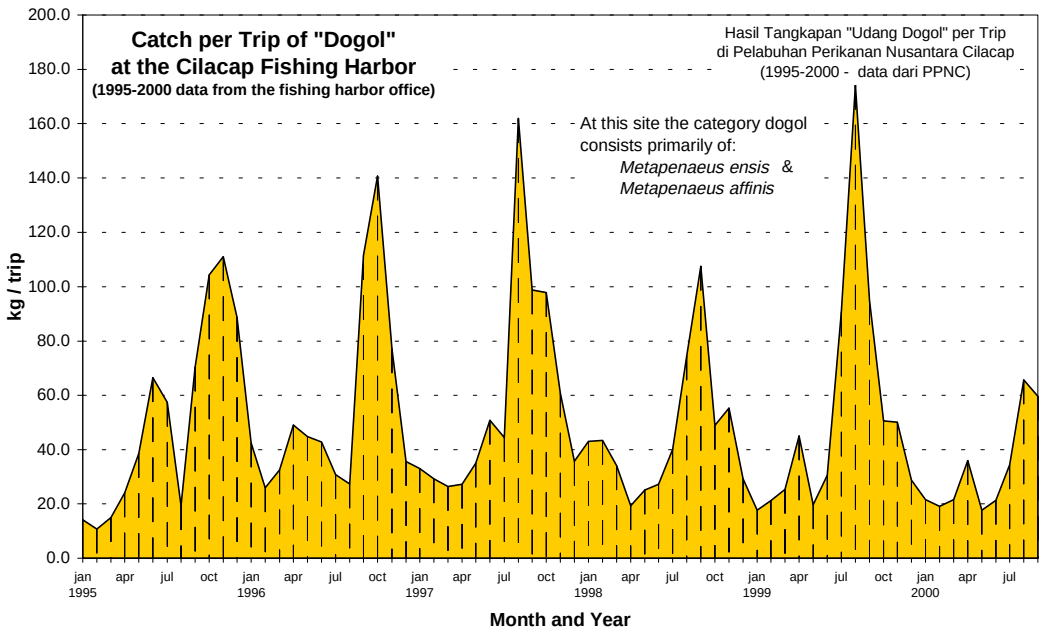


Figure 16. Monthly mean catch per trip of the sales category **dogol** from 1995 to 2000 based on information and data available from PPNC auction place records.

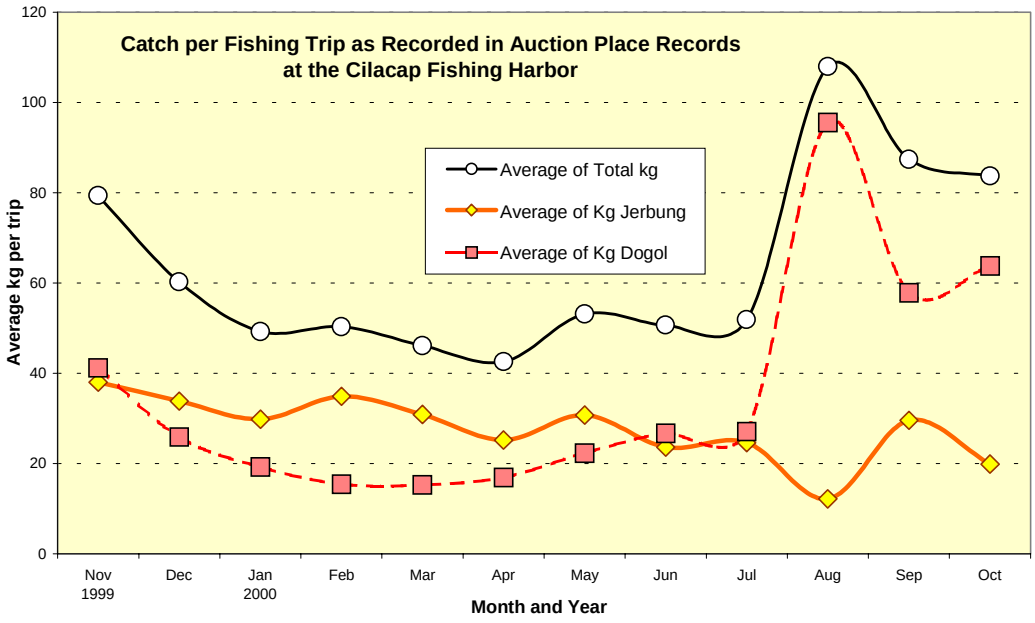


Figure 17. Catch per trip for all shrimp and for the sales groups dogol and jerbung based on a sample of data from auction place daily sales records. Data was obtained from buyers books (buku bakul) at the PPNC auction.

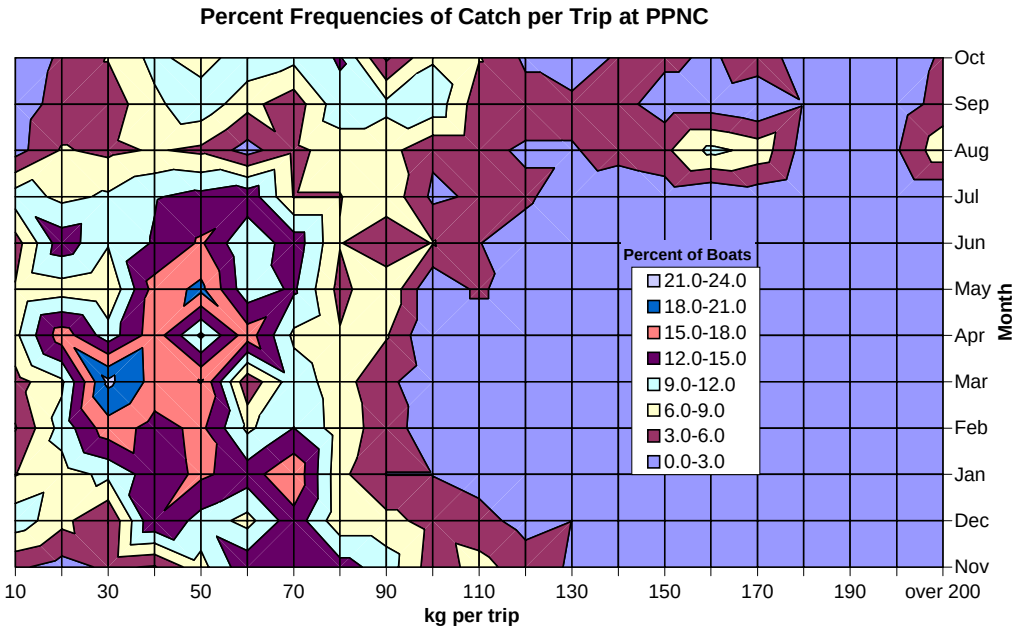


Figure 18. Percent of trammel net boats, landing their catches at PPNC, which caught different amounts of shrimp. X-axis values indicate upper end of a 10 kg range. For example, in May between 40 and 50 kg was caught by 18 to 21 percent of the boats.

SIDAKAYA

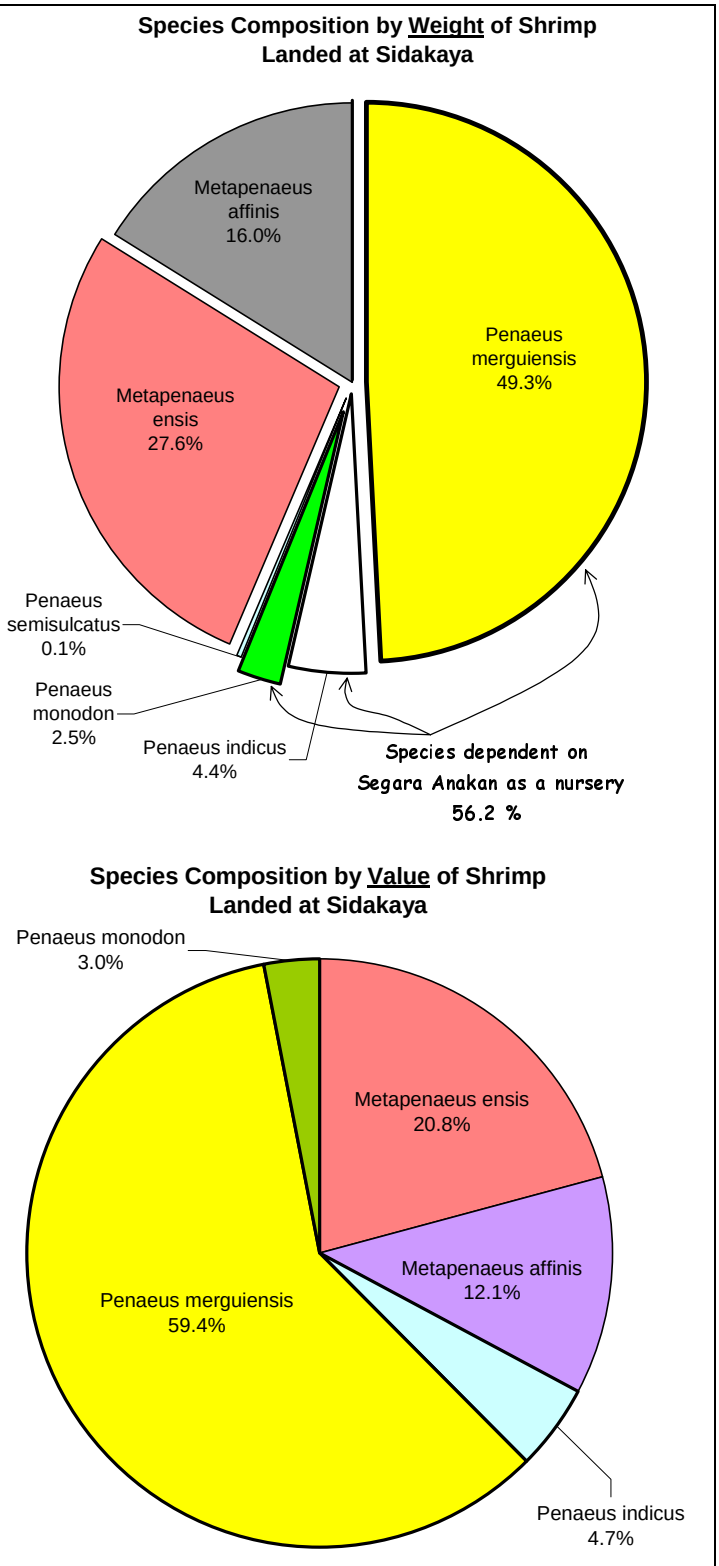


Figure 19. Species composition of shrimp catches at Sidakaya by weight and approximate value during November 1999 through October 2000. A dark outline indicates species highly dependant on Segara Anakan.

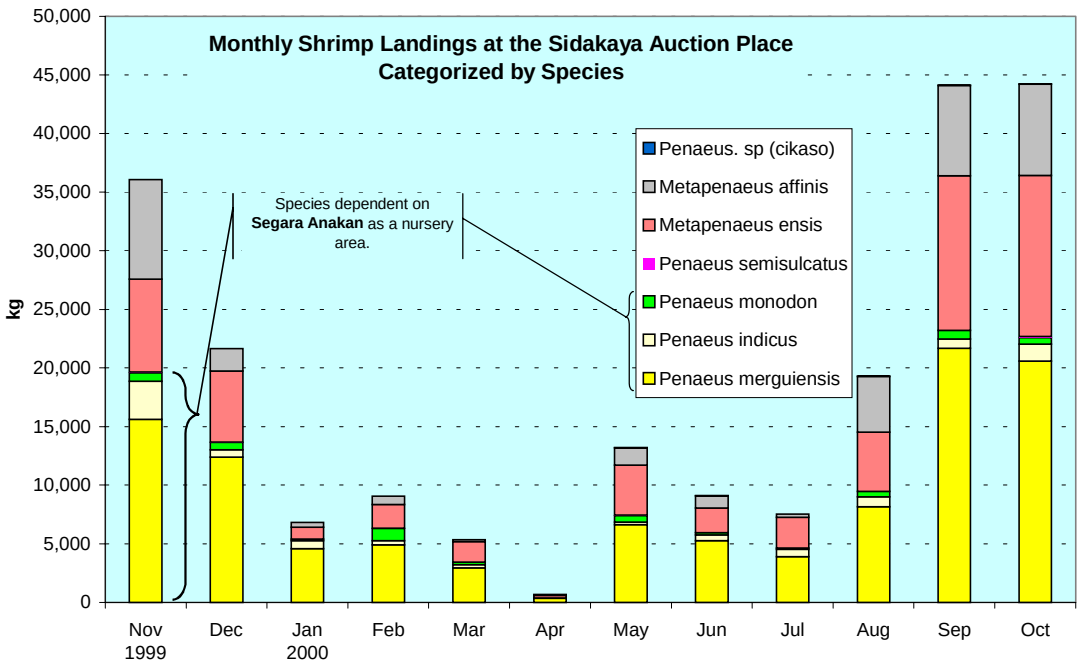


Figure 20. Total landings and species composition data by month at Sidakaya. Data are based on a combination of auction place records of total catch by sales group and our own species composition sampling at the auction hall.

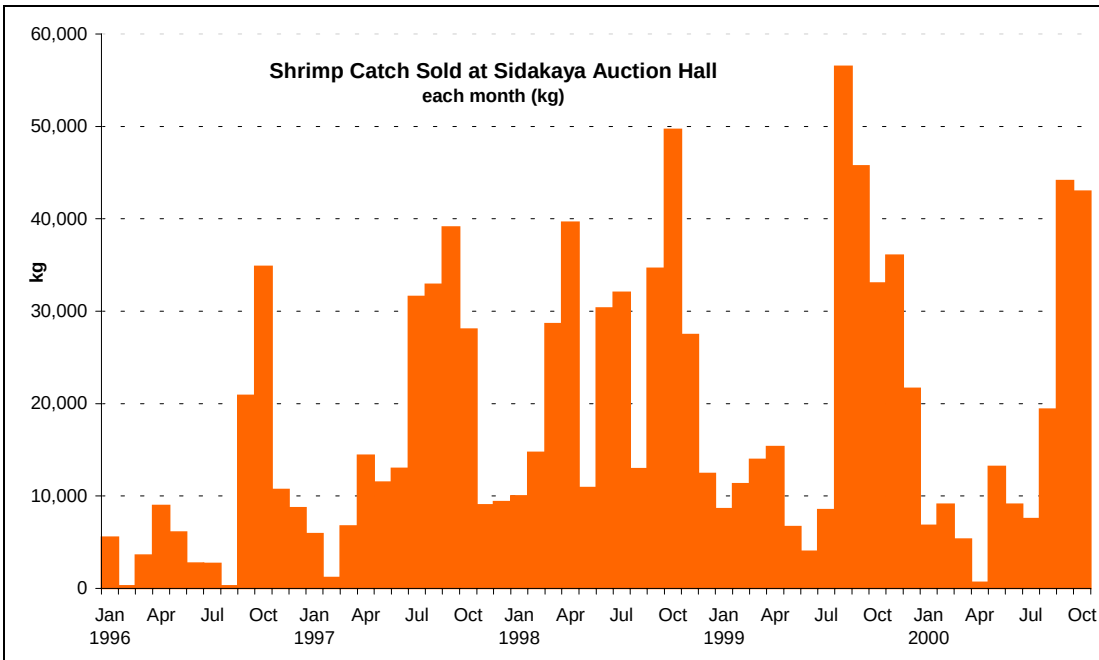


Figure 21. Shrimp sold monthly at the Sidakaya auction hall from 1996 through 2000. Information based on auction place records.

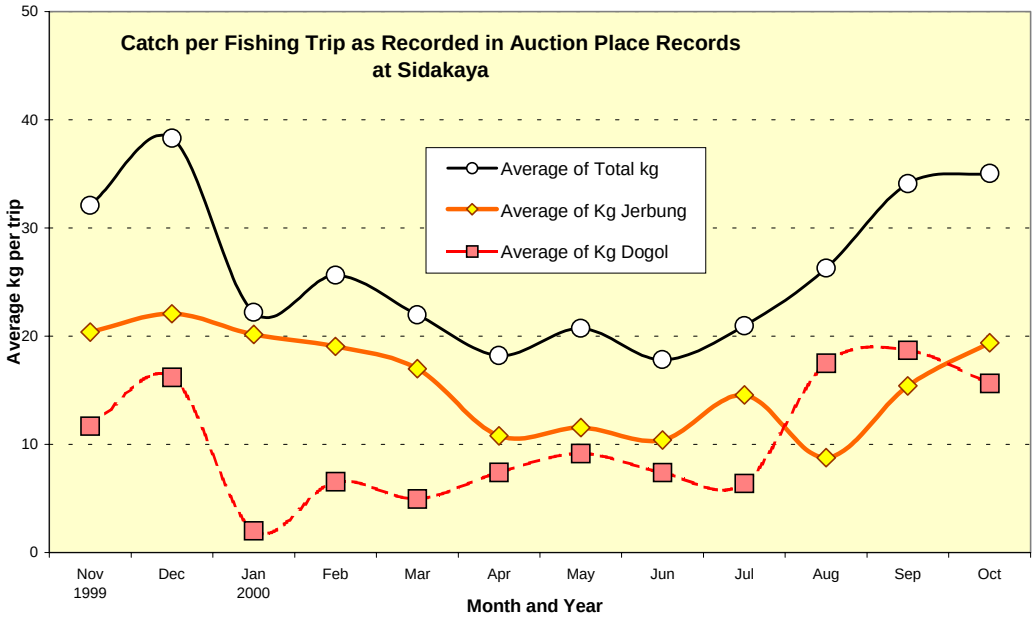


Figure 22. Catch per trip for all shrimp and for the sales groups dogol and jerbung based on a sample of data from auction place daily sales records. Data was obtained from buyers books (buku bakul) at Sidakaya.

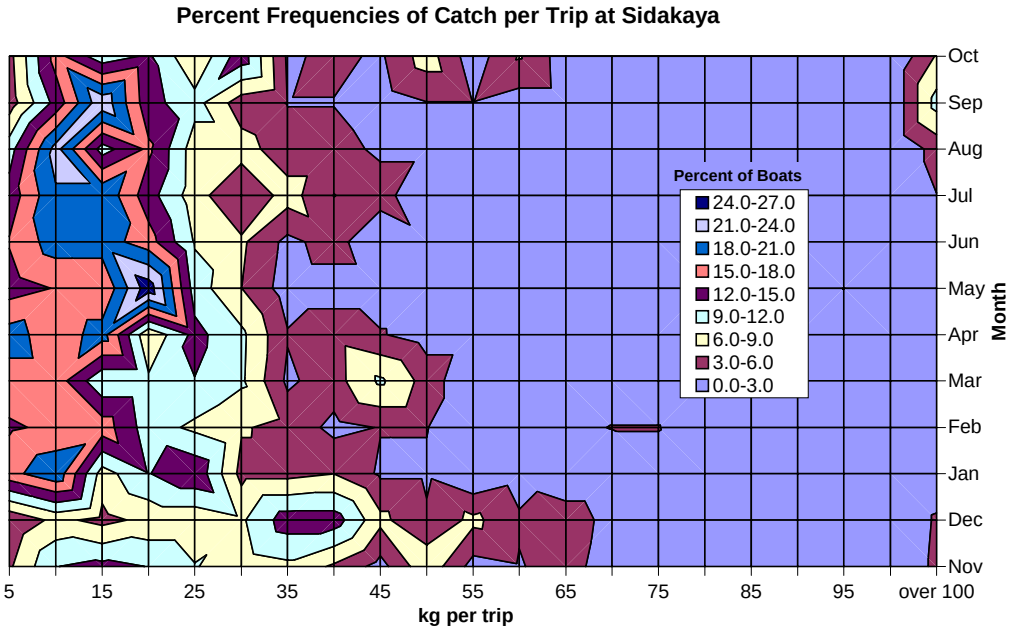
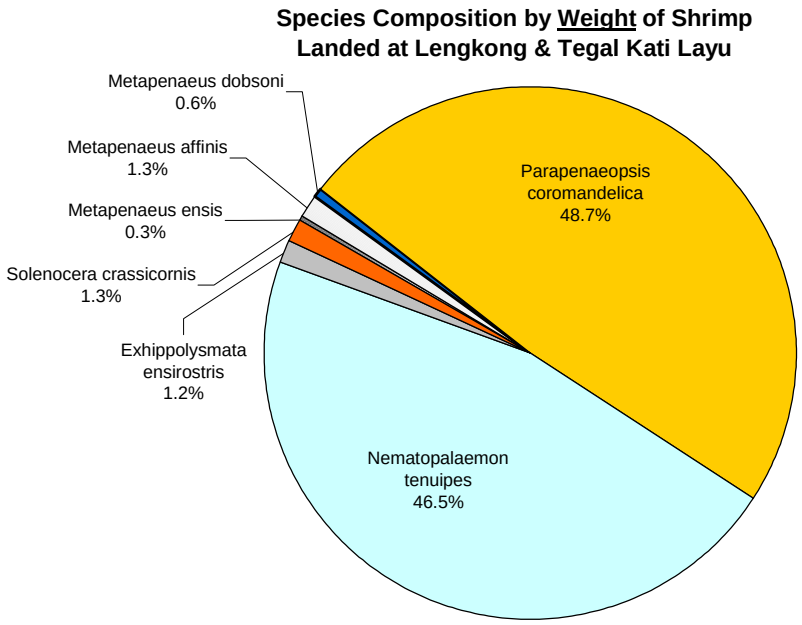


Figure 23. Percent of trammel net boats, landing their catches at Sidakaya, which caught different amounts of shrimp. X-axis values indicate upper end of a 5 kg range. For example, in March between 40 and 45 kg was caught by 9 to 12 percent of the boats.

LENGKONG



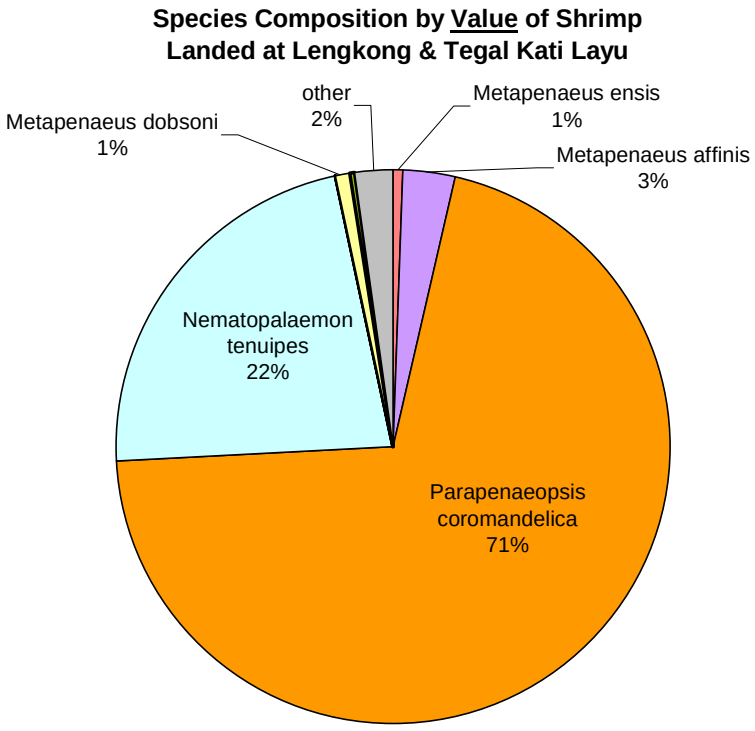


Figure 24. Species composition of shrimp catches at the Lengkong and Tegal Kati Layu by weight and approximate value during November 1999 through October 2000. Few shrimp species highly dependant on Segara Anakan are landed at these sites.

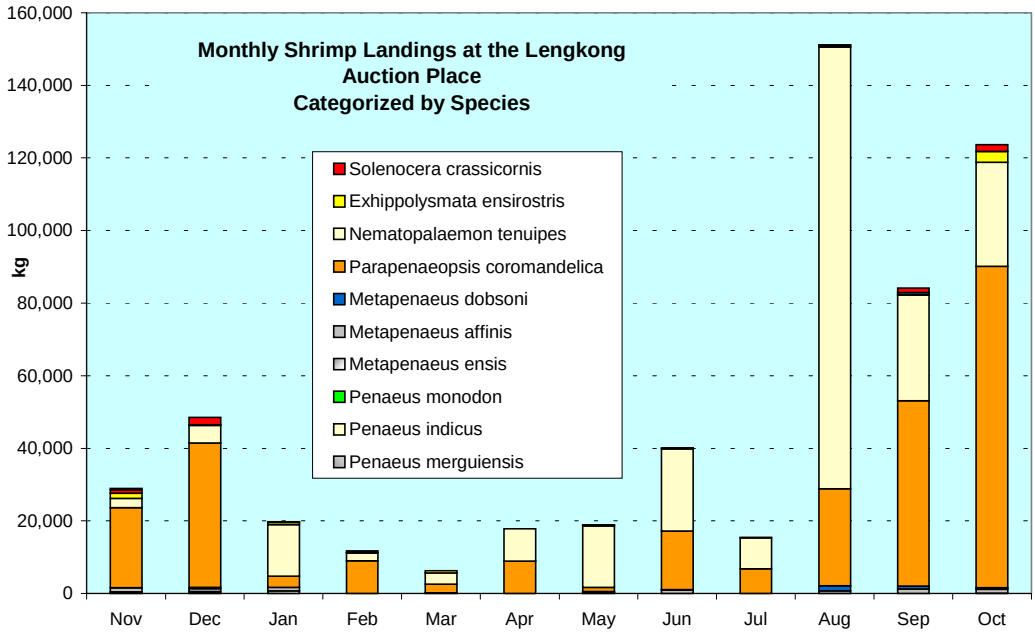


Figure 25. Total landings and species composition data by month at Lenkong. Data are based on a combination of auction place records of total catch by sales group and our own species composition sampling at the auction hall. Catches at Tegal Kati Layu are similar, but there are no records available there.

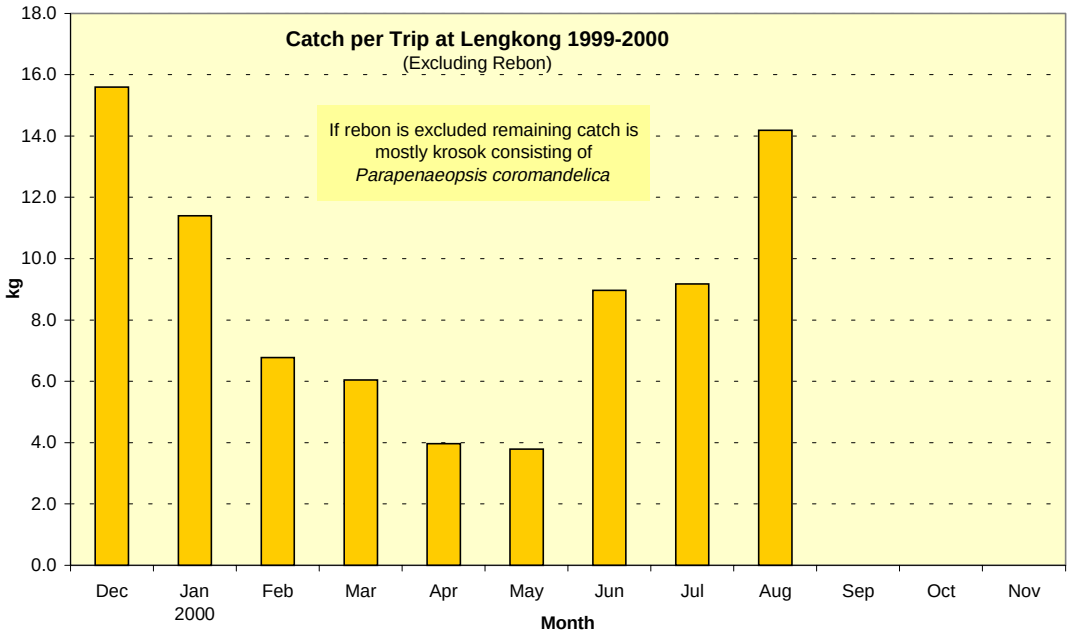
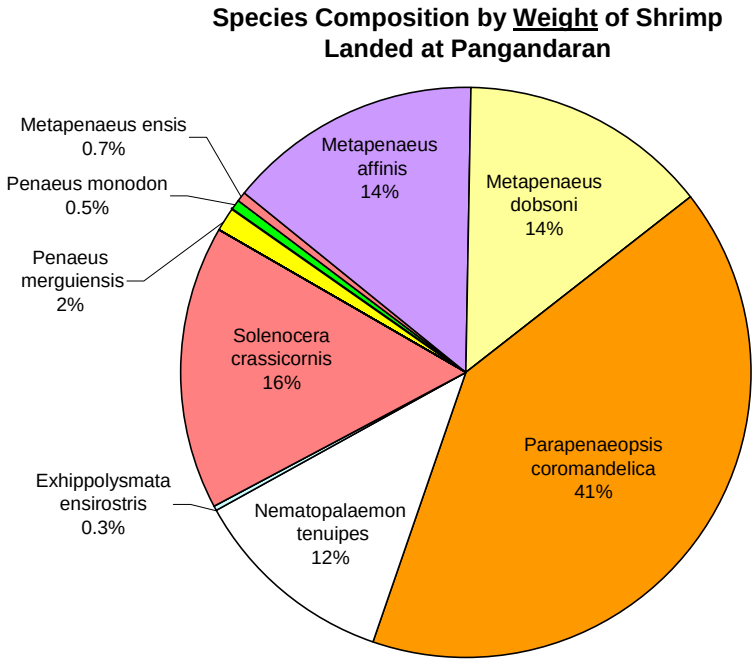


Figure 26. Catch per daily trip information based on limited records available from the Lengkong auction place. This data excludes the sales category "rebon".

PANGANDARAN



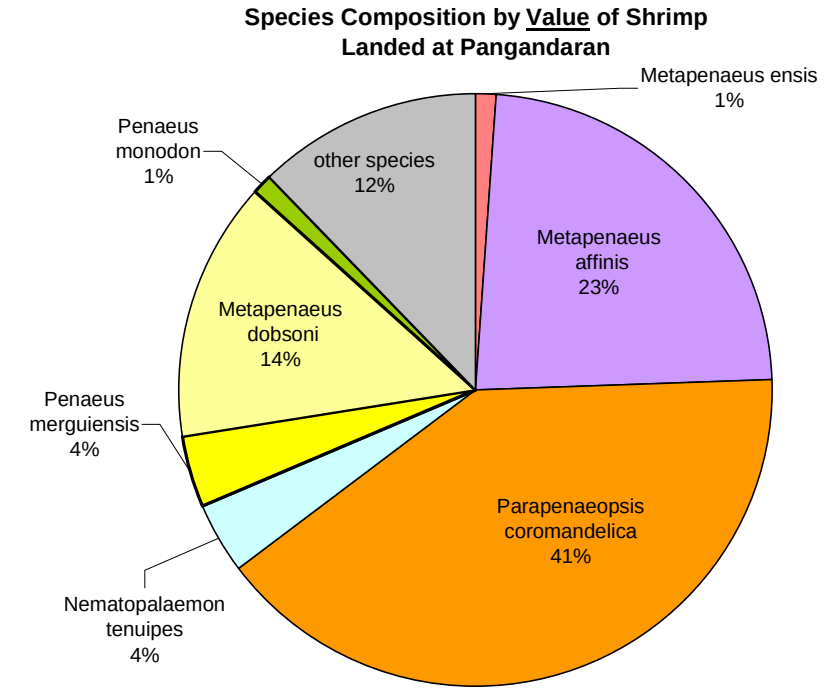


Figure 27. Species composition of shrimp catches at Pangandaran by weight and approximate value during November 1999 through October 2000. A dark outline indicates species highly dependant on Segara Anakan.

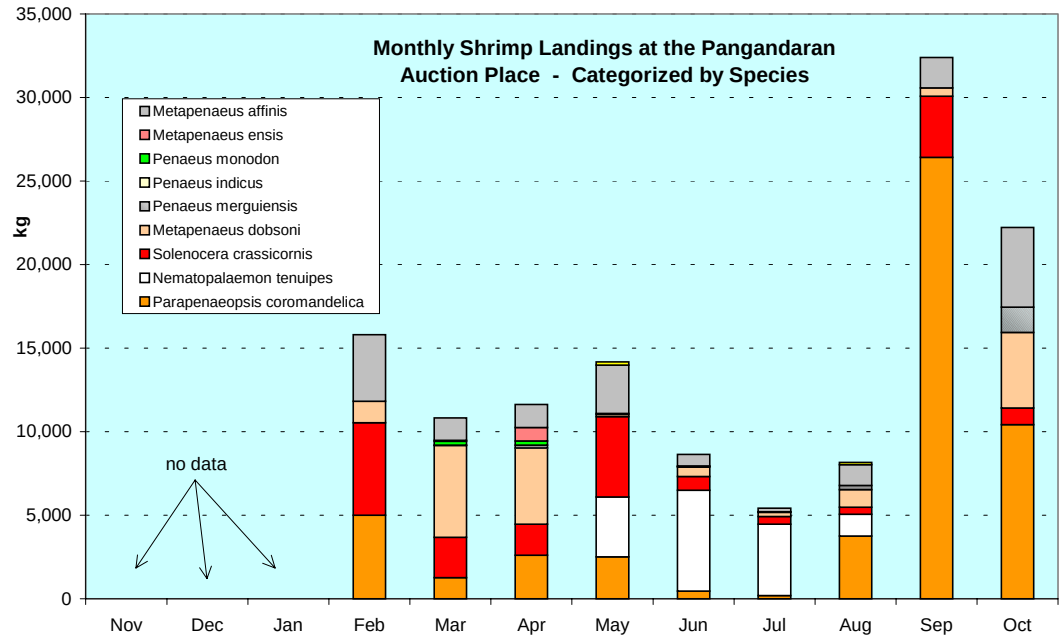


Figure 28. Total landings and species composition data by month at Pangandaran. Data are based on a combination of auction place records of total catch by sales group and our own species composition sampling at the auction hall.

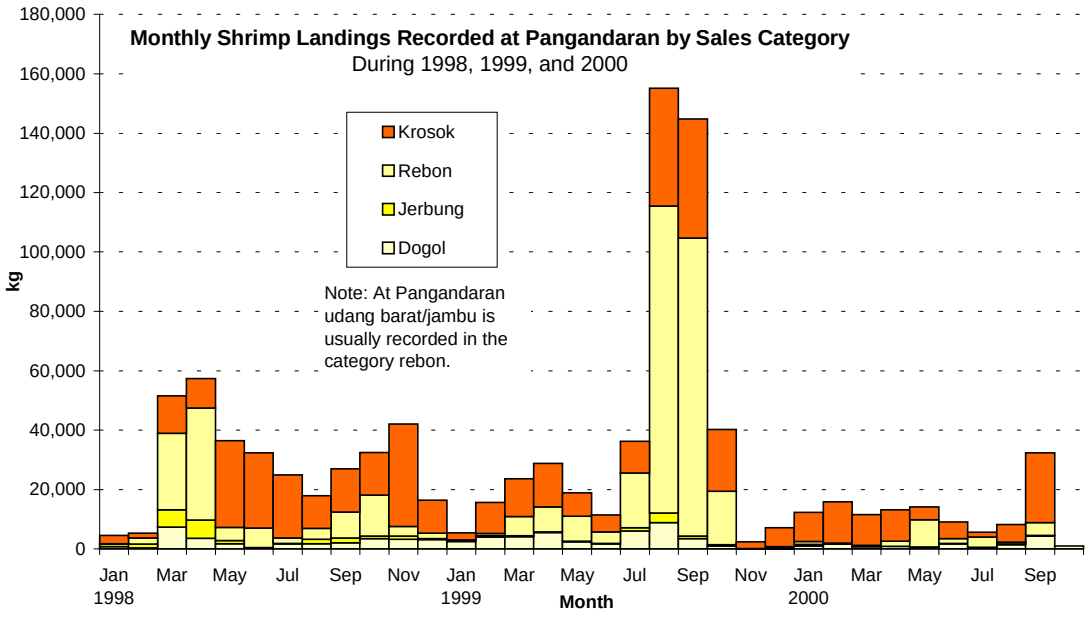


Figure 29. Catch by sales group at Pangandaran as recorded in the auction place records for 1999, 1999 and 2000. Large variations in catch occur due to large landings of "rebon". At Pangandaran the species *Metapenaeus dobsoni* (called udang barat or udang jambu) is usually recorded in the sales group "rebon". (Also see following figure).

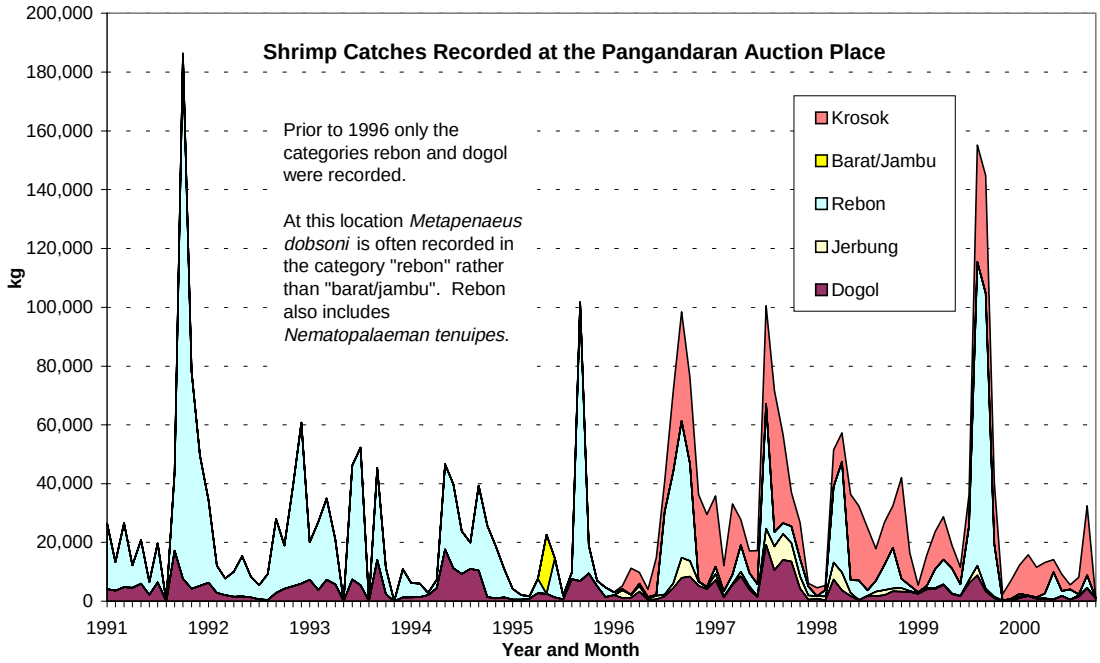


Figure 30. Catch by sales group at Pangandaran as recorded in the auction place records from 1991 through 2000. Note large variations in catch occur due primarily to large landings of "rebon". At Pangandaran *Metapenaeus dobsoni* is usually recorded in the sales group "rebon" as is the small species *Nematopalaemon tenuipes*. (Also see previous figure).